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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,516	03/12/2007	Kazuya Koyama	0425-1259PUS1	5146
2292 7590 04/29/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER CLEMENTE, ROBERT ARTHUR				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
04/29/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/578,516

Applicant(s)

KOYAMA ET AL.

Examiner

ROBERT A. CLEMENTE

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8-11 and 14 is/are rejected.
- 7) ☒ Claim(s) 3-5,7,12 and 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/5508)
- Paper No(s)/Mail Date 20060508, 20060808
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "4" has been used to designate both wire rods (figure 2) and an igniter (figure 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

"21" in figure 4.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because it is formed as two paragraphs. Correction is required. See MPEP § 608.01(b).
5. Claim 7 is objected to because of the following informalities: In the third and fourth lines of the claim, the recitation "the section vertically superposed in the radial direction and that is formed flat" is ungrammatical. The examiner suggests changing it and will interpret it as --the section vertically superposed in the radial direction is formed flat--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 2, 6, 8 - 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,908,481 to Siddiqui in view of Japanese publication No. JP 2001-301561 to Ota.

In regard to claims 1 and 11, as disclosed in column 1 lines 10 - 15, Siddiqui discloses a filter for an air bag gas generator. Figure 1 shows a top view of the filter (10) of Siddiqui having four layers (12, 14, 16, 18). The inner layer (12) can be considered a first layer and is formed by helically winding a wire rod on a mandrel as disclosed in column 2 lines 60 - 66. As shown in figure 2, the pitch angle of the wire rods vertically superposed in the radial direction is symmetrical. The first layer is inherently formed by helically winding a wire rod in at least one reciprocating process in the axial direction of the filter to be manufactured. The outer layer (16) is also formed by winding a stainless

steel wire and can be considered a second layer. As shown in figure 1, the outer, or second, layer (16) is formed on the outer side of the first layer (12). As disclosed in column 3 lines 41 - 45, the outer layer (16) is formed by a finer wire to provide a smaller mesh size. Thus, the second layer (16) inherently has a finer filter particle size than the first layer (12). As disclosed in column 3 lines 4 - 7, the diameter of the wire can be selected as needed to provide the desired overall filtration capabilities, however, Siddiqui does not distinctly disclose using a wire rod having a cross-sectional area of 0.03 to 0.8 mm² for the first layer. Ota also teaches a filter for an air bag gas generator. As shown in figure 2, Ota discloses a filter having two layers (3, 4). The inner layer (3) is made from a wire rod (31) with a larger cross-sectional area than the wire rod (41) of the outer layer (4). As disclosed in paragraph [0007], the wire rod (31) of the inner layer (3) can have a diameter in the range of 0.3 to 0.6 mm, which gives a cross-sectional area of about 0.07 to 0.3 mm².

It would have been obvious to one of ordinary skill in the art at the time of the invention to choose a wire rod having a cross-sectional area in the range of 0.03 to 0.8 mm² for the first layer of Siddiqui as suggested by Ota since a wire of this size is known in the art for use in air bag gas generator filters.

In regard to claim 2, Siddiqui does not disclose the filter particle size of the second layer (16) of the filter. Siddiqui discloses, in column 3 lines 42 - 43, that the second layer (16) is made in the same manner as the first layer (12). As disclosed in column 3 lines 4 - 7, the diameter, pitch, and cross angle of each layer can be selected to provide the desired filtration capabilities. There is no evidence that the claimed range

of 6 to 400 microns for the filter particle size of the second layer is critical. One of ordinary skill in the art would predictably be able to use routine experimentation to adjust the diameter, pitch, and/or cross angle to produce a filter material having a particle size of 6 to 400 microns.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose or optimize the properties of the second layer to give a filter material having a filter particle size of 6 to 400 microns given the specific filter capabilities required by the user.

In regard to claim 6, as shown in figure 2, the intersecting angle of the wire rods of the both layers vertically superposed in the radial direction is greater than 0 degrees and no more than 90 degrees.

In regard to claim 8, as shown in figure 1 and 8, the second layer (16) projects from an axial end surface of a filter formed in a cylindrical shape.

In regard to claim 9, Siddiqui also does not disclose the diameter of the wire rod of the second layer (16). In paragraph [0007], Ota discloses using a wire rod with a diameter in the range of 0.1 to 0.3 for the second filter layer. Similarly, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose a wire rod having a diameter in the range of 0.02 to 0.7 mm for the second layer of Siddiqui as suggested by Ota since a wire of this size is known in the art for use in air bag gas generator filters.

In regard to claim 10, the filter of Siddiqui and Ota includes all of the structural limitations in claim 1 of the instant application and inherently can be used with a combustion temperature of not more than 2000K.

In regard to claim 14, as discussed above, Siddiqui discloses a filter for gas inflators of air bag restraint systems. As disclosed in the abstract, the gas generator is a solid propellant gas generator. A gas generator of this type inherently includes an ignition device and a solid gas generating agent.

Allowable Subject Matter

9. Claims 3 - 5, 7, 12, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 3 - 5, 12, and 13, there is no teaching or suggestion in Siddiqui or Ota to include a third layer with a wire rod having a larger cross-sectional area than the cross-sectional area of the wire rod of the second layer.

In regard to claim 7, Siddiqui, as shown in figure 2, does not teach or suggest forming the section vertically superposed in the radial direction to be flat.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Other prior art references listed on the PTO-892 (Notice of References Cited) are considered to be of interest disclosing similar filters.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT A. CLEMENTE whose telephone number is (571)272-1476. The examiner can normally be reached on M-F, 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RAC

/DUANE SMITH/
Supervisory Patent Examiner, Art Unit 1797